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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Killworth, Gottman, Hagan & Schaeff, L.L.P.
Suite 500
One Dayton Centre
Dayton, OH 45402-2023

EXAMINER

SHAPIRO, JEFFERY A

ART UNIT

PAPER NUMBER

3653

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/044,550

Applicant(s)

DUNLOP ET AL.

Examiner

Jeffrey A. Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10, 12-20 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10, 12-20 and 28 is/are rejected.
- 7) ☒ Claim(s) 20 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/402,750.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 20 and 28 are objected to because of the following informalities. In Claim 20, line 2, after "trapezoidal" and before "planar", the comma appears to be better replaced with "and". In Claim 28, it appears that the word "and" should be inserted before the word "planar". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what is meant by ">820nm respectively."

4. Claim 15 recites the limitation "3dB stopbands" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 10, and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levasseur in view of Nakai et al . Levasseur discloses the banknote validator as follows.

As described in Claim 10;

1. a banknote validator including an optical sensor for sensing optical characteristics of a banknote (B) (also, see abstract) being validated;
2. the optical sensor comprising as follows;
 - a. a light source (120);
 - c. a photodetector (121-125)
3. wherein the light source ~~(6)~~¹²⁰ is a source of broadband light and the light guide is arranged to operate as both;
 - a. an incident light-directing means for directing light from the light source onto the banknote (see figure 8, noting the light direction arrows indicating the light being directed towards the banknote (B), and;
 - b. as a reflected light-directing means for directing light reflected from the banknote to the photodetector via the optical filter (note reflected light direction arrows leading from the banknote to the photosensor (121);

As described in Claim 16;

12. an optical banknote sensor (OS), (See col. 5, lines 34-42) configured to sense light reflected by a banknote being validated,

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characterized in that the sensor is configured to sense light reflected obliquely from the banknote being validated (see figure 8, noting that direction lines for the light are at angles with respect to the banknote (B));

As described in Claim 17;

13. the sensor is configured to sense light reflected from the banknote being validated at an angle in the range of 60 – 80 degrees to the surface of the banknote at the point of reflection (note that the angle of the reflected light in figure 8 appears to be at an angle of 60-80 degrees);

As described in Claim 18;

14. the angle is 70 degrees (note that the angle of the reflected light in figure 8 appears to be at an about an angle of 70 degrees—note also that it would have been a matter of design choice as to which angle to use based on which angle provides the best presentation of light to the photosensors for best imaging accuracy);

Levasseur does not expressly disclose, but Nakai et al discloses the following.

As described in Claims 10 and 19;

2. the optical sensor comprising as follows;
 - a. a light source (4416, for example)(see col. 8, lines 1-12);

- b. a light guide (2' and 3') (see also col. 6, lines 36-40)(note that it would be expedient^{to use} for one ordinarily skilled to place a light guide on a light source to focus the light and to keep the light source isolated from dirt—note also that Levasseur discloses a “light transmissive area” in Claim 1);
- c. a photodetector (4208)
 - c.1 which is preceded by an optical filter (4201-4203);

As described in Claim 13;

- 7. the light source produces light substantially across the whole of the visible spectrum (see Nakia et al, col. 8, lines 2-12);

As described in Claim 14;

- 8. the optical sensor comprises;
 - a. a plurality of photodetectors (note Levasseur's photodetectors and that it would be obvious to use multiple detectors to improve accuracy—note also Nakamia's photocells (4208 and 4208'));
 - b. a plurality of optical filters (4201-4203);
- 9. to which light is directed by the light guide (note that light guides are well-known by those skilled in the art to be used for focusing light from light sources);

10. the optical filters having different passbands and being associated with respective photodetectors (note that it would be expedient for one ordinarily skilled in the art to provide a filter for eliminating any wavelength which is undesired—this would be based on the situation at hand—see also Nakamia, col. 8, lines 65-67 and col. 9, lines 1-20);

As described in Claim 15;

11. the 3dB stopbands of the filters are 420-720nm and 480-540nm together with >820nm respectively (See Nakamia, col. 8, lines 65-67, col. 9, lines 1-20 and col. 10, lines 11-20 and lines 59-63);

Both Levasseur and Nakai et al are considered to be analogous art because they both concern banknote image scanning means.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have added filters and a light guide to the light source and photodetector system of Levasseur.

The suggestion/motivation would have been to filter out unwanted bandwidth based on the desired information to be measured. See col. 8, lines 66-67 and col. 9, lines 1-20. The light guide would have been suggested as a lens to focus the reflected light or, simply to keep out impurities such as dust. See col. 10, lines 12-19.

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Therefore, it would have been obvious to combine Levasseur and Nakai et al to obtain the invention as specified in Claims 10, and 13-19.

Claims 12, 20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levasseur in view of Nakai et al and further in view of Yamana et al. Levasseur discloses the banknote validator as described above. Levasseur does not expressly disclose, but Yamana et al discloses the following.

As described in Claims 12, 20 and 28;

4. the light guide is substantially in the form of a trapezoid (see col. 4, lines 38-53;

5. the narrow end of which is adjacent to the light source and the photodetector and;

6. the broad end of which is adjacent to a banknote path;
(See col. 4, lines 38-53)

16. the light guide comprises a transparent, trapezoidal, planar solid having a narrow end and a broad end, the narrow adjacent the photodetector and the broad end being adjacent a banknote path (see col. 4, lines 38-53);

17. the light guide comprises a translucent and planar solid (note that it would have been expedient for one ordinarily skilled in the art to provide such a light guide, as it could not work without being translucent, and also noting that a solid provides better refraction characteristics than a translucent liquid, for example.)

Both Levasseur and Yamana et al are considered to be analogous art because they both concern document image scanning means.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have made the light guide of Levasseur a trapezoid with the wider portion located close to the document.

The suggestion/motivation would have been to magnify or capture the reflected light and direct it to the opposite end, therefore increasing the accuracy of the image as presented to the photodetector. See col. 4, lines 38-53. See also Frick (US 6,072,560), col. 2, lines 48-67 and col. 3, lines 1-9 as well as Routt, Jr. et al, (US 4,342,511), Claim 1, for example.

Therefore, it would have been obvious to combine Levasseur and Yamana et al to obtain the invention as specified in Claims 12, 20 and 28.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jung et al, Atherton, Pries et al, Wong (See figure 22), Bercovitz and Phillips are cited as examples of document imaging systems.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey A. Shapiro whose telephone number is (703)308-3423. The examiner can normally be reached on Monday-Friday, 9:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald P. Walsh can be reached on (703)306-4173. The


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fax phone numbers for the organization where this application or proceeding is assigned are (703)306-4195 for regular communications and (703)306-4195 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1113.



Jeffrey A. Shapiro
Patent Examiner,
Art Unit 3653



DONALD P. WALSH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

June 28, 2003